

REMARKS

The amendment filed March 9, 2009 was entered by the filing of a Request for Continued Examination on April 7, 2009.

The present amendment is supplemental to the amendment filed March 9, 2009. However, for the Examiner's convenience, the arguments presented in the amendment filed March 9, 2009 are included in this amendment.

The application is now believed to be in condition for allowance.

Status of the Claims

Claim 6 is new, and recites three possible Si-O-Si bridge configurations according to the claimed invention. Support for this amendment may be found, for example, at paragraphs [0018], [0034] and [0050].

Claims 1-6 remain pending.

Claim Rejections-35 USC §102

Claims 1 and 3-4 are rejected under 35 USC §102(b) as being anticipated by KOICHIRO et al. JP 2002-173661 (KOICHIRO). This rejection is respectively traversed for the reasons that follow.

The claimed invention is a silicon-containing curing composition for preparing a cured product excellent in both heat resistance and flexibility (see, for example, paragraph [0007] of the present specification). In order to achieve these properties each of components (A), (B) and (C) is silicon containing polymers that include an Si-O-Si bridge structure.

Claim 1 has been further amended to clarify the requisite structure of the claimed invention to attain both excellent heat resistance and flexibility, i.e., in terms of the manner in which components (B) and (C) are formed. The component (B) (or a portion of the component (C) which has a similar structure to the component (B)) has an Si-H group only at the terminal portions thereof, and not in the repeating unit of the main chain thereof.

A Rule 132 Declaration by Mr. Takashi SUEYOSHI was included in the Appendix of Amendment filed March 9, 2009. The declaration demonstrates the claimed composition is required to obtain the superior heat resistance and flexibility from the claimed invention. The declaration includes an evaluation of the flexibility for the specification Examples 1-11 and Comparative Examples 1-2, which was not provided in the originally filed specification. Flexibility was evaluated according to tensile stress and elongation, which was evaluated as inferior when both tensile stress and elongation were insufficient. The declaration also includes new Comparative Examples 3 and 4, which

specifically demonstrate the significance of the claimed Si-H group and claimed Si-O-Si bridge structure, respectively.

The adhesive composition of KOICHIRO comprises (A) an organopolysiloxane having at least two alkenyl groups bonded to silicon atoms in the molecule and having a molecular weight of 1000 or greater, (B) an organohydrogenpolysiloxane having at least two hydrogen atoms bonded to silicon atoms in the molecule and having a molecular weight of 1000 or greater, (C) a platinum catalyst, and (D) an organosilicone compound.

However, KOICHIRO fails to anticipate the claimed invention as recited in claims 1, 3-4 and 6.

I. KOICHIRO fails to disclose the claimed Si-H group.

The component (B) (or a portion of the component (C) which has a similar structure to the component (B)) has an Si-H group only at the terminal portions thereof, and not in the repeating unit of the main chain thereof.

Some of the polymers represented by formulas (5)-(9) exemplified as the component (B) of KOICHIRO indeed have an Si-H group at the terminal portion of the compound. However, every component (B) used in Examples of KOICHIRO contains an Si-H group in a repeating unit.

Thus, KOICHIRO fails to disclose an actual adhesive composition based on a component having the claimed Si-H terminal group.

II. KOICHIRO fails to disclose the claimed Si-O-Si bridge structure.

The Official Action has misinterpreted the recitation "Si-O-Si bridge structure" as simply "a bridge is a thing that provides connection or contact between two different things".

Based on this interpretation, for example, the linear polymer of  $H-(H_2Si-O)_n H_2Si-H$  (polysiloxane) would be regarded as a polymer having a bridge structure merely because the linear polymer is a compound wherein the two "H"s are bonded by "Si-O-Si".

However, bridging, which is also known as crosslinking, means linking two linear polymers together at locations other than simply the terminal portions of the molecules. It is common knowledge to one of ordinary skill in art of polymer chemistry that a polymer having a "bridge structure" means that the polymer includes a side chain that links a main chain with another main chain. The polymer of the claimed invention has an "Si-O-Si bond" in the side chain.

A polymer structure with a ladder configuration, cage configuration, or cyclic configuration having this type of linking is known as a "bridge structure". For example, specification page 6, lines 15-19, page 13, lines 14-18, and page 20, lines 11-15 explain each component (A), (B) and (C) may "have a ladder configuration, a cage configuration, a cyclic

configuration, etc., depending on the bridge configuration. The ladder, cage, cyclic or like configuration may be composed of an Si-O-Si bond wholly or partially." These configurations are also recited in new dependent claim 6.

KOICHIRO exemplifies polymers represented by formulas (1)-(4) as the component (A) and polymers represented by formulas (5)-(9) as the component (B). However, all of these polymers have a straight line structure, but they do not have a bridge structure. Moreover, although these polymers indeed contain an Si-O-Si bond, the Si-O-Si bond is a repeating unit in the main chain, not as a bridge structure attached as a side chain. Moreover, there is no suggestion of a ladder, cage or cyclic structure as recited in claim 6.

Thus, KOICHIRO fails to disclose a compound with an Si-O-Si bridge structure as a component of the adhesive composition before curing.

This failure is also demonstrated by the declaration.

Comparative Example 4 corresponds to the adhesive composition of KOICHIRO, i.e., the main component of which does not have the "Si-O-Si bridge structure" prior to curing. The adhesive composition of KOICHIRO is obtained by curing its main component (A) and its component (B), together with its component (D) which is a crosslinking agent. The obtained cured product may contain an Si-O-Si bond deriving from the component (D) as a bridge structure.

However, good heat resistance and flexibility cannot be achieved at the same time unless a main component has the "Si-O-Si bridge structure" in advance of curing, i.e., according to the claimed invention. The composition suggested by KOICHIRO (Comparative Example 4) has poor heat resistance, failing to attain the excellent heat resistance and flexibility of the claimed invention.

Thus, taken from the facts that the advantageous effect of the claimed invention cannot be attained, the adhesive composition of KOICHIRO and the claimed invention apparently have different structures, and KOICHIRO cannot disclose the claimed invention.

Therefore, KOICHIRO cannot anticipate the claims 1, 3-4 and 6.

KOICHIRO also fails to render obvious the claimed invention. The claimed invention provides excellent heat resistance and flexibility, and these results are superior to the heat resistance and flexibility of KOICHIRO. KOICHIRO fails to suggest at least two features which contribute to the superior results:

#### I. The claimed Si-H group

Comparative Example 3 is directed to a composition that includes a component with an Si-H group in a repeating unit, rather than the claimed location, i.e., at a terminal end only.

Comparative Example 3 is inferior in both tensile stress and elongation, poor in flexibility, and consequently, fails to achieve the excellent properties of heat resistance and flexibility obtained by the claimed invention.

As discussed previously, some of the formulas disclosed by KOICHIRO (i.e., formulas (5)-(9) as the component (B)) have an Si-H group at the terminal portion of the compound. However, as evidenced by the fact that none of KOICHIRO examples utilizes an Si-H group at the terminal portion only, KOICHIRO fails to recognize that such a feature helps to achieve the excellent properties of heat resistance and flexibility.

## II. The Si-O-Si bridge structure

Comparative Example 4, as discussed previously, is directed to a polymer that has a straight line structure, but does not have an Si-O-Si bridge structure as a main component, and additionally has a small amount of a compound having a cyclic configuration as a crosslinking agent. Specifically, Comparative Example 4 corresponds to the adhesive composition of KOICHIRO, i.e., the main component of which does not have the "Si-O-Si bridge structure" prior to curing, such as a ladder, cage or cyclic configuration.

However, as evidenced by the data in Table 1, good heat resistance and flexibility cannot be achieved at the same time unless a main component has the "Si-O-Si bridge structure" in

advance of curing, i.e., according to the claimed invention. Indeed, the composition suggested by KOICHIRO (Comparative Example 4) has poor heat resistance.

Although there is description about heat resistance of the adhesive composition in KOICHIRO, teachings regarding flexibility are absent therefrom.

Accordingly, since the structure and advantageous effects of the present invention are neither taught nor suggested in KOICHIRO, it would have been unobvious to one of ordinary skill in the art to modify KOICHIRO to achieve the claimed invention.

Therefore, withdrawal of the rejection is respectfully requested.

**Claim Rejections-35 USC §103**

Claims 2 and 5 were rejected under 35 USC §103(a) as being unpatentable over KOICHIRO in view of VERBRUGGEN et al. WO 03/066707 (VERBRUGGEN). These rejections are respectively traversed for the reasons that follow.

KOICHIRO fails to disclose or suggest the claimed invention for the reasons discussed above.

VERBRUGGEN was offered for teaching that the refractive index of organopolysiloxane composition increases with an increase in the phenyl group content. However, regardless of the ability of VERBRUGGEN to teach that for which it is offered,

VERBRUGGEN cannot remedy the shortcomings of KOICHIRO for reference purposes. VERBRUGGEN fails to disclose or suggest a silicon containing curing composition according to the claimed invention.

Therefore, the proposed combination fails to render obvious the claimed invention, and withdrawal of the rejection is respectfully requested.

**Conclusion**

In view of the amendment to the claims and the foregoing remarks, this application is in condition for allowance at the time of the next Official Action. Allowance and passage to issue on that basis is respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to our credit card which is being paid online simultaneously herewith for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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